OceanPredict's perspective on the ocean information value chain

Uniting ocean prediction within an architected global ocean prediction value chain

- Where OceanPredict came from?
- The Decade: Building Impact
  - Unprecedented opportunity
  - Together
  - Full Value Chain
- Advancing Ocean Prediction & Integration

OceanPredict
Advancing the science of ocean prediction

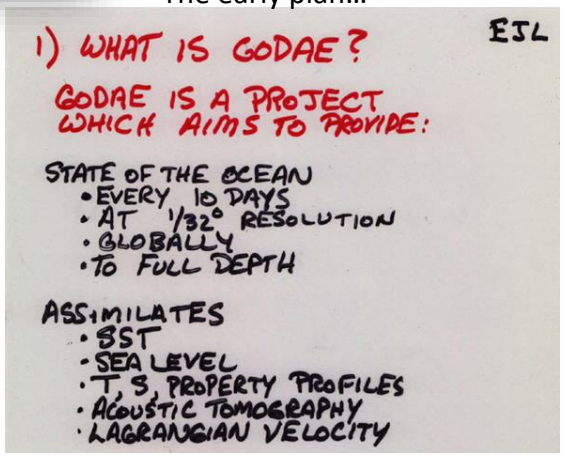
History

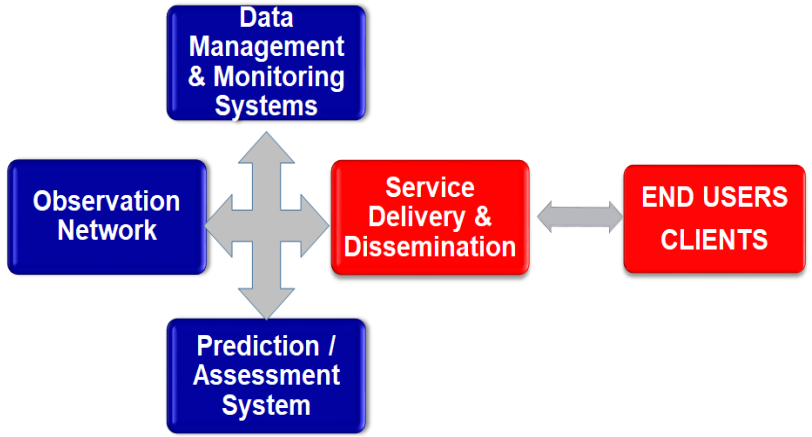
1997/98 GODAE: **"Global Ocean Data Assimilation Experiment"** was initiated to develop a global system of observations, communications, modelling and assimilation to provide regular, comprehensive ocean forecasts & analyses for maximum benefit of society.

2009 further improvements of ocean prediction capacity under **"GODAE OceanView"** with aim of societal benefit.

In 2019 GODAE OceanView was transitioned to **OceanPredict**, with aim of full integration of Ocean Prediction Capacity and Expertise within an international "Observation to End User Value Chain"

The early plan…





Present OP Task Teams (TT)

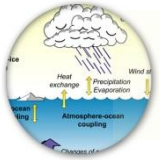
→ **Development of new capabilities**

TTs address specific topics of particular interest to GOV

→ **International collaboration**

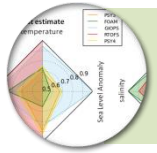
TTs work in collaboration with international programmes and research groups

COSS-TT: Coastal Ocean and Shelf Seas



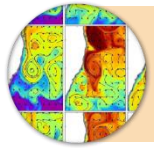
CP-TT: Coupled Prediction

DA-TT: Data Assimilation



IV-TT: Intercomparisons and Validation

MEAP-TT: Marine Ecosystem Analysis and Prediction



OSEval-TT: Observing System Evaluation

Ocean Predict – Operational Systems WG

Vision

OceanPredict's vision is to be a long-term international network for Ocean Prediction research and development that is anchored within a larger Operational Oceanography network.

OceanPredict will continuously improve operational oceanography for sustainable economic and societal benefit by:

- improving marine prediction system science and capacity;
- contributing to ensuring a seamless value chain from observations to end users; and by
- mutually supportive collaboration with international observing, environmental prediction and service delivery networks and institutions.

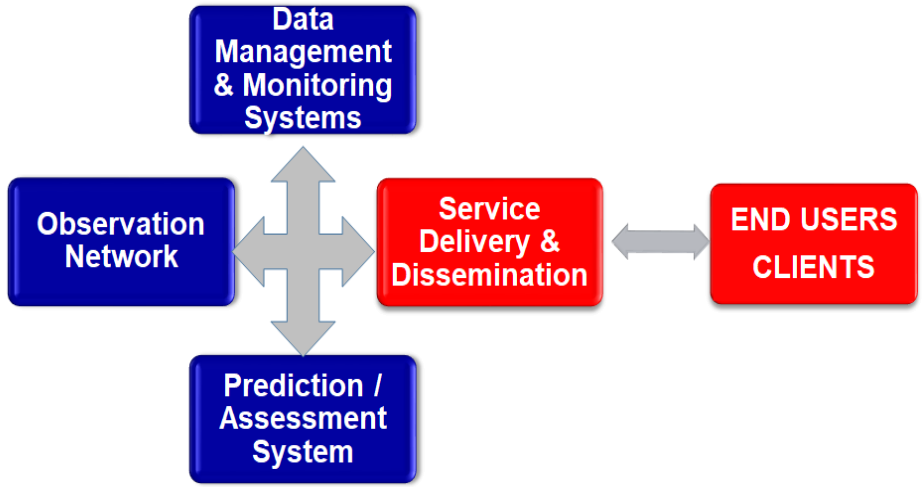
OceanPredict strategy

OceanPredict a component of:

Seamless Environmental Prediction

Full operational oceanography value chain

We cannot achieve societal benefits on our own



Ocean Predict's view (2019) of Operational Oceanography Value Cha

Whole Operational Oceanography Prediction Framework:

The Architect and Catalyst: Decade Collaboration Center (DCC) led by Enrique

Colaborating Groups and Decade Programs:

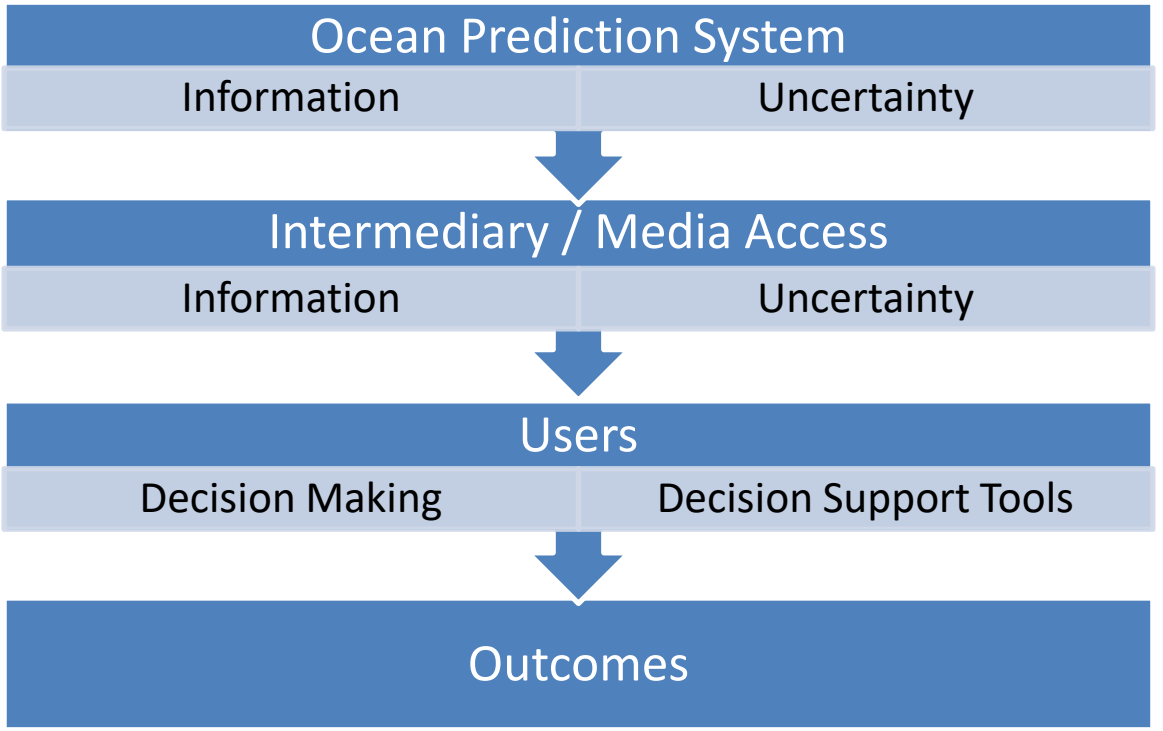
- GOOS
- GOOS-ETOOFS
- OOPC
- Ocean Predict / ForeSea
- Observation Codesign
- CoastPredict
- SynObs
- DITTO
- WMO
- IOC

Information Value Chain

Working definition of Information value chain

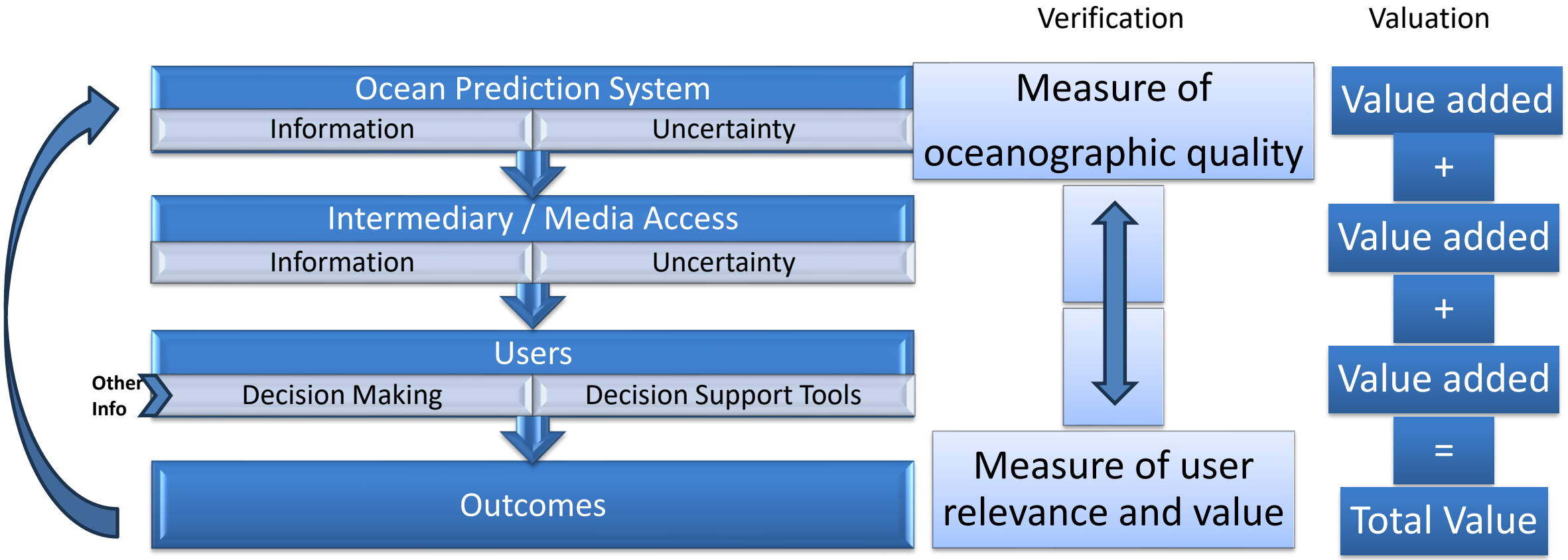
- ***Heuristic* tool to help define, characterize, and examine the production, flow, translation, transformation, use, influence and value of information and knowledge***

- 1960s/70s Economic Theory
- 1980s/90's Management Science, value chain analysis /manufacturing
- Is Applied now days to provision of public information services (ocean, weather forecasts…)
- A tool for social scientists to map out information flow



*enabling someone to discover or learn something for themselves.

Information Value Chain



*enabling someone to discover or learn something for themselves.

Example: E-Navigation Information Value Chain

Transiting dynamic Ocean Environment

Currents/ Waves/ Keel clearance

Ocean Prediction

Dissemination Transformation &Translation

User Decision & Actions

Outcomes

- Safe efficient arrival at port
- Efficient use of fuel

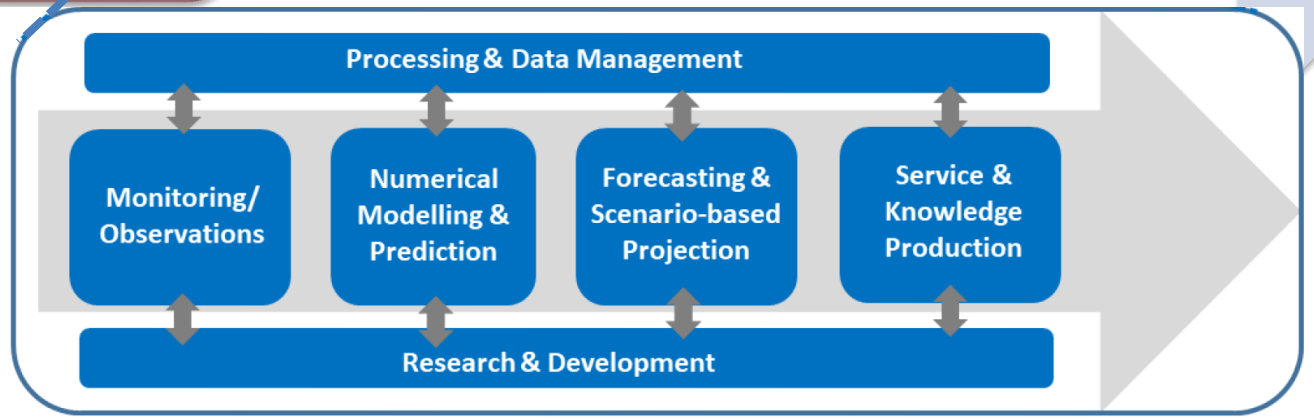
Societal Value Benefits/ Costs

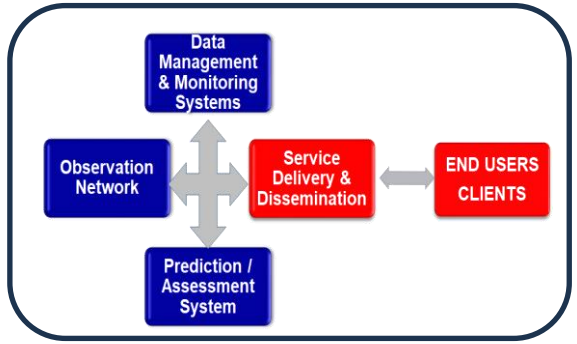
Safe navigation

Reduced Environmental Risk

Maritime safety

Sustainable economic development





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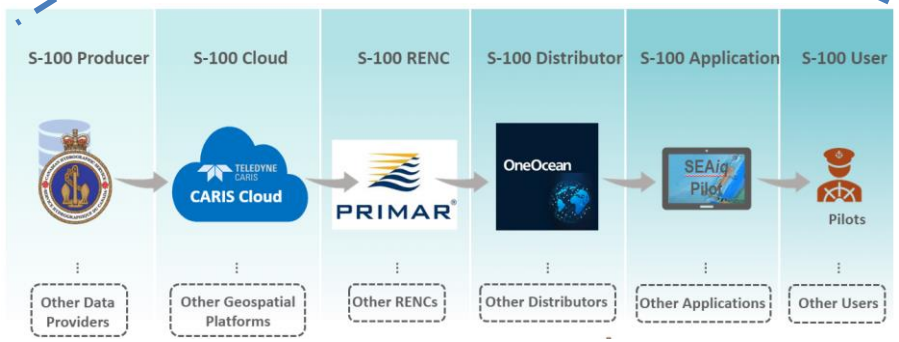
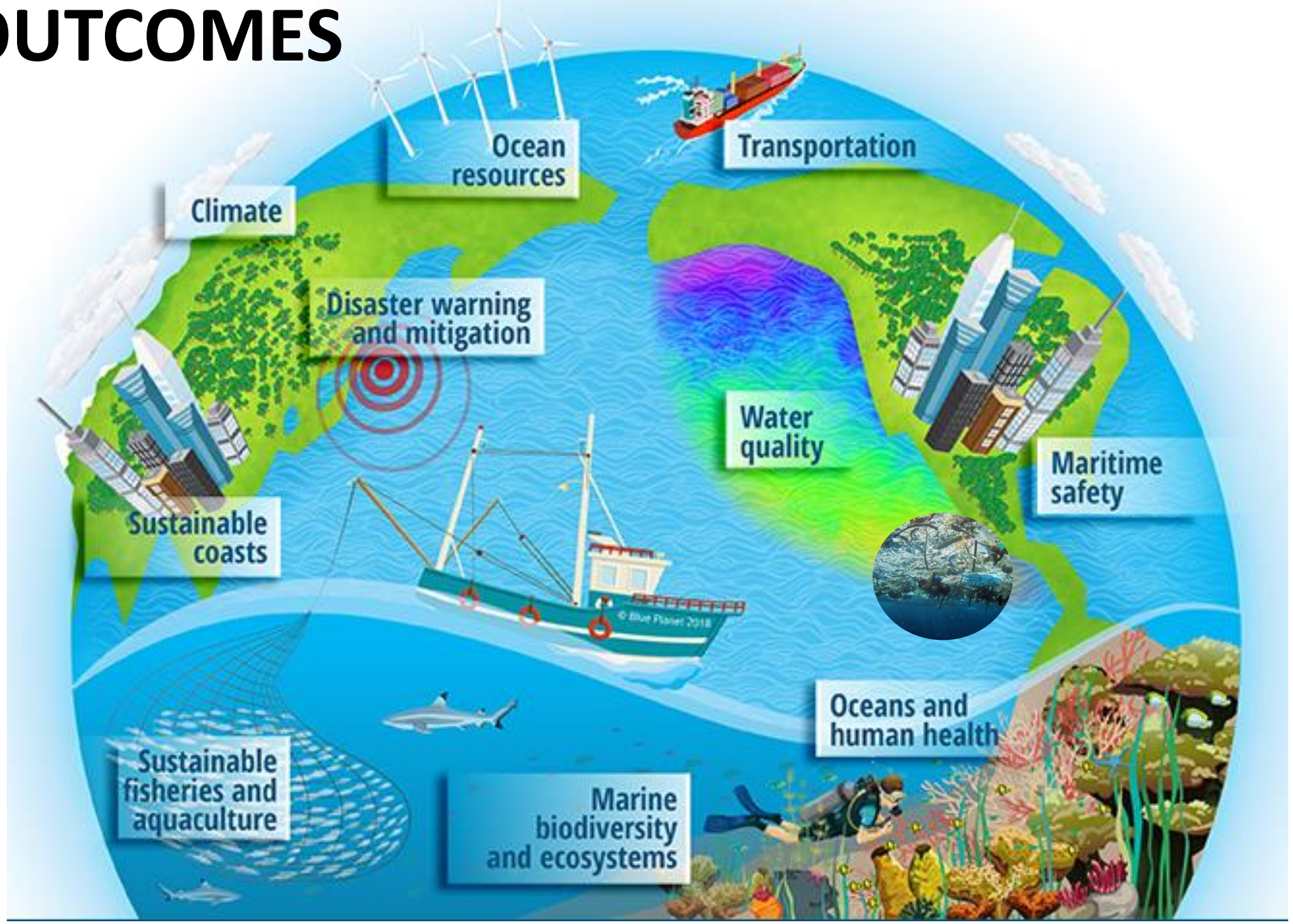


OUTCOMES


Ocean resources
Transportation
Climate
Disaster warning and mitigation
Water quality
Maritime safety
Sustainable coasts
Oceans and human health
Sustainable fisheries and aquaculture
Marine biodiversity and ecosystems

To bear in mind

- Each component/node of the information value chain has a Research, Development and Operational (RDO) phase
- End users don't just suddenly use a new information product for important decisions without a bit of testing, asking questions, evaluating ….

  Trusted DCC Atlas and Operational Readiness Indexes will help accelerate operational use as well as standardized prediction system reports, observing system reports, literacy development

- Services are a node or component of the information value chain
  - And so are users and outcomes
- The RDO phases can be used to describe maturity of system and the services / uses it sustains.

- Keeping the ocean healthy requires first and foremost knowledge of its status and workings.
- Understanding the ocean, monitoring and accurately describing and forecasting it provides valuable information, which properly communicated and distributed has many practical applications
- What benefit from an upgrade in a node or component of the value chain is anticipated and realized?

OceanPredict Decade Activities

OceanPredict
Advancing the science of ocean prediction

Ocean Prediction UN DECADE COLLABORATIVE CENTER

Ocean Prediction Capacity of the Future
ForeSea

DITTO
Digital Twins of the Ocean

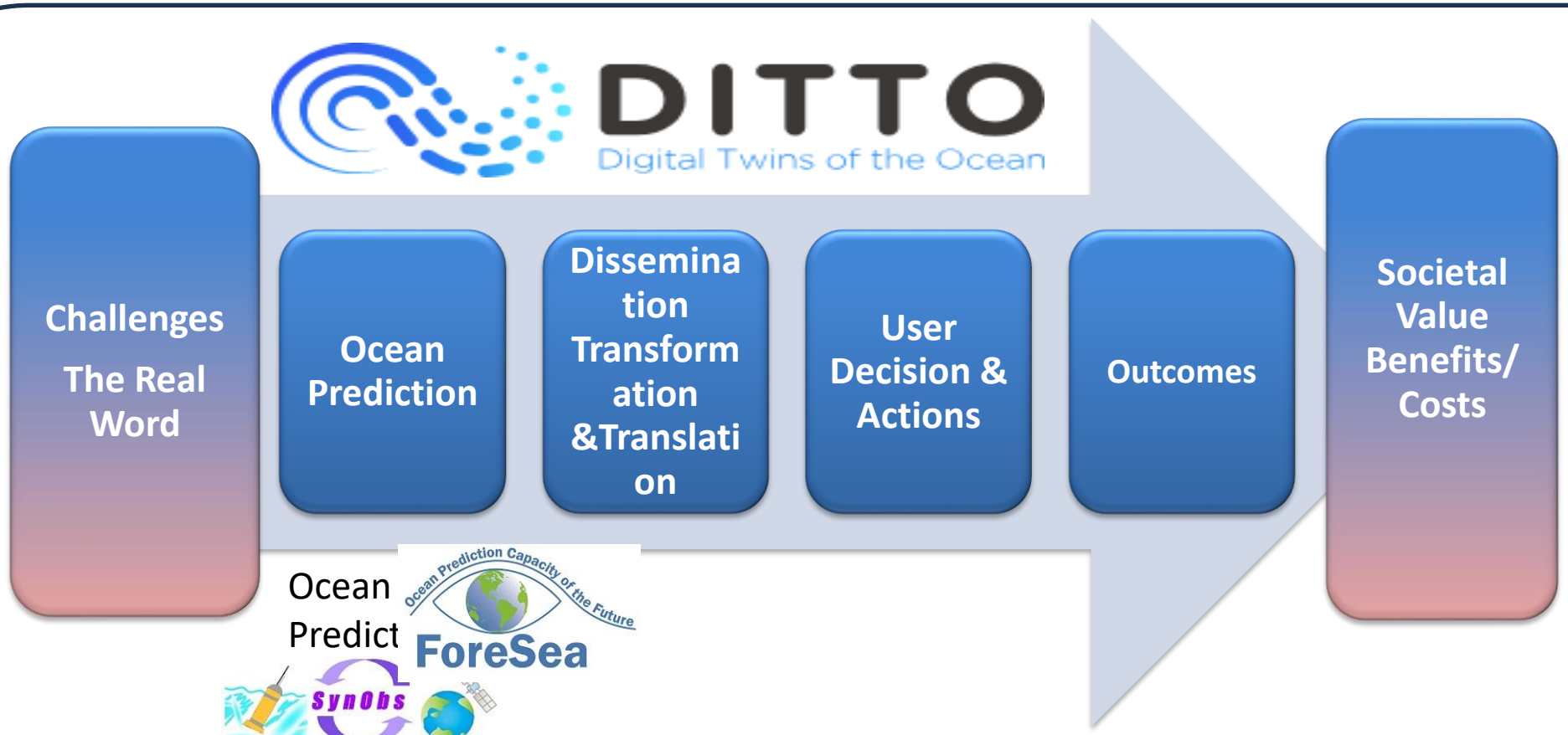
SynObs
UN Ocean Decade Project

GOOS | Ocean Observing Co-Design
by The Global Ocean Observing System

GOOS | CoastPredict
with The Global Ocean Observing System

GlobalCoast

Information Value Chain



Ocean Predict

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Ocean Prediction | UN DECADE COLLABORATIVE CENTER

Overview Best Practices Prediction Systems Reports 2022

End use needs

- Wanting to know who uses it
- Sufficient details of what the system provides
- Utility / fit for purpose / accuracy
- Need to make decisions with prediction output

Integration into full value chain of ocean prediction

- Providing consistent way for underpinning system details in many forms
- Support accreditation process of ET-OOFS for system
- Provide links to more detailed information, system handbook
- Complement the guide on Ocean Forecast Systems
- Enable harvesting of information for many different sites, reports and views:
  - Observation and satellite agency perspective
  - End user perspective
  - Overview of status of forecasting systems